

## **On-going Activities Related to IWFM Engine Development**

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### **IWFM Users Group Meeting**

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- A new option for the simulation of the deep percolation and return flow is added. The user is now able to enter values for either saturated hydraulic conductivity of the root zone or the “*deep percolation fraction*” parameter. If hydraulic conductivity values are entered, the excess soil moisture above field capacity is routed physically through the root zone to compute deep percolation. If deep percolation fraction values are entered, then this fraction of the excess soil moisture above field capacity becomes deep percolation and the rest becomes return flow.
- The implementation of the functionality to keep track of the actual date and time in the simulation period is completed. Time-stamped time series data stored in ASCII files as well as HEC-DSS files can now be read in and written out. This version of IWFM will be available to the public by early January 2007.
- *Logit functions* are incorporated into IWFM. These functions can be used to emulate an economics model directly in IWFM. Currently this functionality is being tested in a problem where crop acreages are dynamically generated based on the groundwater elevations. This functionality is not available to the public at this point in time.
- As time permits, IWFM code is being restructured using object-oriented programming concepts. This will allow effective maintenance of the code, faster

implementation of new features/methodologies and will speed up the development of IWFM-related utilities (e.g. IWFM GUI, IWFM Demand Calculator, etc)

- Our technical paper on the theory of the Z-Budget component of IWFM is published in the November 2006 issue of ASCE Journal of Hydraulic Engineering (*Dogrul, E. C., and Kadir, T. N. (2006). "Flow computation and mass balance in Galerkin finite-element models." J. Hydraul. Eng., 132(11), 1206–1214.*)